

# Memorandum

DATE: **FEB 04 2009**

REPLY TO  
ATTN OF: EM-63 (Dr. James M. Shuler, 301-903-5513)

SUBJECT: Authorization for Use of Neolube No. 2 Thread Lubricant on the RTG Package

TO: Owen Lowe, Associate Director NE-34

Reference: Letter Request from Stephen G. Johnson to Owen W. Lowe, dated December 8, 2008; Subject: Contract No. DE-AC07-05ID14517 — *Response to Review Questions on Radioisotope Thermoelectric Generator Transportation System Safety Analysis Report for Packaging, Addendum 6 and Request for Authorization to Use Neolube Thread Lubricant on Containment Closure Bolts for the Radioisotope Thermoelectric Generator Transportation System Package*; and the associated Enclosure 3, i.e., *Assessment of Lubricating the RTG OCV and ICV Closure Bolts with Neolube*

The referenced letter in addition to responding to questions concerning Addendum 6 to DOE CoC 9904, RTG packaging, also requested the approval of use of Neolube No. 2 thread lubricant on the RTG package outer and inner containment vessel (OCV/ICV) closure bolts and the OCV impact limiter attachment bolts. Because this request applies to all uses of the DOE CoC 9904 and not just the shipments concerning the contents addressed by Addendum 6 to the RTG, this request was addressed by this review by the DOE Packaging Certification Program (PCP) as a separate action.

The DOE PCP recognizes that the OCV/ICV closure bolts are cadmium-plated steel, and that these bolts are threaded into high-strength steel inserts that are also cadmium-plated. The staff also recognizes that no thread lubricant has been specified within the RTG Safety Analysis Report for Packaging, for either the bolts, or the inserts. The staff further recognizes that over time and use, the cadmium plating, without the use of a thread lubricant, would have been expected to wear off, both the bolts and the inserts.

Neolube No. 2 Lubricant has a temperature range of -70°F to 400°F and has been subjected to radiation levels of  $1 \times 10^9$  rads. According to its web site, Neolube No. 2 has “the properties that enable it to be used for lubrication in internal and external applications of commercial and government nuclear reactor systems.” It can be used as a non-seize lubricant for bolts. The staff notes that the OCV/ICV closure bolt threads can be lubricated with Neolube No. 2 to reduce further wear and potential galling of the threads and that the use of the Neolube No. 2 thread lubricant on the OCV impact limiter bolts is also justified to reduce the range of uncertainty of the applied torque and reduce wear.

Your request to use Neolube No. 2 Lubricant for DOE CoC 9904 is approved. This authorization expires on February 28, 2011, which is the expiration date of the DOE CoC USA/9904/B(U)F-85 (DOE). At least 30 days prior to the expiration date of DOE CoC 9904 a consolidated Safety Analysis Report for Packaging (SARP) shall be submitted which incorporates the supporting information for all of the applicable Addendums to the RTG and this procedure.

If you have any questions, please call Dr. James M. Shuler at (301) 903-5513.

Sincerely,

A handwritten signature in black ink, appearing to read 'Dae Y. Chung', is written over the printed name.

Dae Y. Chung  
Headquarters Certifying Official  
Deputy Assistant Secretary for  
Safety Management and Operations  
Environmental Management

cc:

J. Shuler, EM-63  
S.O'Connor, EM-63  
D.Cairns-Gallimore, NE-34  
A.DiSabatino, LLNL